

**ON A COLLECTION OF FISH FROM THE COROMANDEL
COAST OF INDIA INCLUDING PONDICHERRY AND
KARAICKAL AREAS**

By

A. G. K. MENON

Zoological Survey of India, Calcutta

(With 1 Plate)

CONTENTS

	PAGE
I—Introduction	369
II—Acknowledgments	371
III—Systematic Account	371
IV—Zoogeographical Remarks	402
V—Summary	403
VI—References	403

I—INTRODUCTION

During the years 1956-58, the Zoological Survey of India carried out two intensive surveys of the Coromandel Coast of India, including the Pondicherry and Karaikkal areas. Pondicherry and Karaikkal, the former French possessions and the intervening strip of the Coromandel Coast are of special interest for in the past many European zoologists had made collections there and described many new and interesting species. The main purpose of the survey of this area was, therefore, to procure the topotype material of the various species described from there.

The chief rivers of the area surveyed are the Ginghee, the Ponnaiyar, the Gadilam, the Uppanar, the Vellar and the Arasalar ; all these rivers flow in almost parallel courses to the east into the Bay of Bengal. Of these, excluding the Ginghee and the Ponnaiyar in which collections were made both at places away from the tidal limits as well as at the mouth of the river, the survey was done only at their mouths. The backwaters at Cuddalore and the Killi backwaters at Porto Novo were specially surveyed.

The following is the list of collecting stations with the dates of collection :—

- ## 1. Pondicherry—20-xii-56.

[369]

2. Veerampatnam, about 3 miles south of Pondicherry—20-xii-56,
21-xii-56 & 22-xii-56.
3. Manikaranthope, about 3 miles south-west of Veerampatnam.—
23-xii-56.
4. Sunnambar river, branch of the Gingee, off Nonankuppam,
about 5 miles south of Pondicherry—24-xii-56.
5. Usteri Tank, about 8 miles north-west of Pondicherry—26-xii-56,
28-xii-56, 11-ii-58 & 12-ii-58.
6. Vaithikuppam, about 2 miles north of Pondicherry—27-xii-56,
8-ii-58.
7. Sunnambukalawa, about a mile west of Pondicherry—14-ii-58.
8. Ariyankuppam, about 4 miles south of Pondicherry—15-ii-58.
9. Madukkarai, about 21 miles south-west of Pondicherry—
3-i-57, 13-ii-58.
10. Ponnaiyar river, near Rampakam, about 6 miles south of
Madukkarai—3-i-57.
11. Panayadikuppam, about 6 miles south-east of Madukkarai—
5-i-57.
12. Madakardipet, about 41 miles north of Madukkarai—6-i-57,
9-ii-58.
13. Cuddalore, South Arcot Dist., Madras—10-i-57, 17-ii-58.
14. Kuddikadu backwaters, about 2 miles south-west of Cuddalore
11-i-57, 21-ii-58.
15. Ponnaiyar river, near Periyaganankuppam, about 5 miles north-
west of Cuddalore—12-i-57, 19-ii-58.
16. Sonakuppam, 2 miles south of Cuddalore—11-i-57, 12-i-57,
15-i-57.
17. Thannikoil, about 7 miles north-west of Cuddalore—14-i-57.
18. Bahur, about 10 miles north-west of Cuddalore—15-i-57.
19. Gadilam river, Cuddalore—17-i-58, 20-ii-58.
20. Kunjampetta, about 31 miles south of Cuddalore—22-ii-58.
21. Veeranam Lake, about 38 miles south-west of Cuddalore—
26-ii-58, 27-ii-58.
22. Porto-Novo, South-Arcot Dist., Madras—19-i-57, 20-i-57.
23. Vellar river, Porto Novo—21-i-57.
24. Pudupet, about $2\frac{1}{2}$ miles north of Porto Novo—22-i-57.
25. Killi backwaters, about 4 miles south-west of Porto-Novo—
24-i-57.
26. Pichavaram backwaters, about 10 miles south of Porto-Novo—
25-i-57.
27. Tranquebar, Tanjore Dist., Madras—29-i-57, 3-iii-58.
28. Poraiyar, about 2 miles south of Tranquebar—30-i-57.
29. Sattankudi, about 2 miles north of Tranquebar, 31-i-57, 1-ii-57,
4-iii-58.
30. Karaikkal, Pondicherry State—4-ii-57, 6-iii-58.
31. Mouth of the Arasalar river, Karaikkal—5-ii-57, 9-ii-57, 10-iii-58.

32. Kilingimedu coast, about $3\frac{1}{2}$ miles north of Karaikkal—6-ii-57, 9-ii-57, 10-ii-57 & 9-iii-58.
33. Kakamurihe, about $3\frac{1}{2}$ miles south-west of Karaikkal—7-iii-58.
34. Keechankuppam, about 3 miles south of Nagapatnam—8-ii-57.
35. Mariamangalam, about $3\frac{1}{2}$ miles west of Karaikkal—7-iii-58.
36. Ammankulum, about 8 miles north of Karaikkal—9-iii-58.
37. Mananpetta, about 11 miles north-west of Karaikkal—11-iii-58.

In all there are 175 species in the present collection including two new species, one a Ophichthyid eel, *Pascanichthys deraniyagalai* Menon, and another a pipe-fish, *Doryichthys* sp., the descriptions of which are being published separately in the *Journal of the Zoological Society of India*. Topotype specimens of the following fifteen species were obtained :—*Carcharhinus sorrah* (Müller & Henle), *Narcine timlei* (Bloch & Schn.), *Narke dipterygia* (Bloch & Schn.), *Therapon puta* Cuv. & Val., *Sphyraena obtusata* Cuv. & Val., *Polydactylus sextarius* (Bloch & Schn.), *Lactarius lactarius* (Bloch & Schn.), *Atropus atropus* (Bloch & Schn.), *Caranx (Carangoides) malabaricus* (Bloch & Schn.), *Mene maculata* (Bloch & Schn.), *Johnius carutta* Bloch, *Otolithes ruber* (Bloch & Schn.), *Scomberomorus guttatus* (Bloch & Schn.), *Psettodes erumei* (Bloch & Schn.) and *Trichiurus savala* Cuvier. They are indicated under the respective species. A systematic account of the collection with the number of specimens and their size ranges under each species according to the localities and their geographical distribution is given in the paper. Except where otherwise stated, the measurements given indicate the "total length" of the fish from the tip of the snout to the far end of the tail fin. A brief zoogeographical discussion on the marine fishes in the collection is also attempted. The study of the marine fishes in the collection points out to the conclusion that the Malay Archipelago is the main centre of evolution of the marine shore-fishes of the Indo-West Pacific Region, and India obtained its shore-fish fauna from this centre of distribution.

II—ACKNOWLEDGMENTS

I take this opportunity to express my sincerest thanks to the authorities of the Pondicherry State, especially to Sri Venkatasubba Reddiar, Councillor for Public Works and Fisheries, and to Sri E. K. Madhavan, the Director of Fisheries, for the great interest they took in my work and the help they rendered in the collection of fishes. To Dr. M. L. Roonwal, the Director of the Zoological Survey of India, I am deeply indebted for affording me the opportunity to survey the Coromandel Coast and the interest he showed in my study.

III—SYSTEMATIC ACCOUNT

Class I. ELASMORBANCHII

Order 1. LAMNIFORMES

Family 1. ORECTOLOBIDAE

1. *Chiloscyllium griseum* Müller & Henle

1841. *Chiloscyllium griseum* Müller & Henle, *Syst. Beschr. Plagiostomen*, Berlin, p. 19. (India ; Japan.)

1, 450·0 mm., Kilingimedu, Karaikkal.

Distribution.—From the Red Sea, South Africa, and India to the Malay Peninsula, China and Japan.

Family 2. CARCHARHINIDAE

2. **Scoliodon sorrakowah** (Cuvier).

1829. *Carcharias sorrakowah* Cuvier, *Règne Animal*, Paris, 2 (ed. 2), p. 388.
(Based on description of *sorrah kowah*, in Russell 1803, *Fish. Coromandel*, 1, p. 9, pl. 15. Vizagapatam.)

3, 286·6—545·5 mm. Sonakuppam, Cuddalore.

Distribution.—From Mekran, India, and Ceylon to Burma, Malaya, Siam, Indo-China, Java, Philippines and Japan.

3. **Carcharhinus sorrah** Müller & Henle

1841. *Carcharias (Prionodon) sorrah* Müller & Henle, *Syst. Beschr. Plagiostomen*, Berlin, p. 45, pl. 16. (Pondicherry ; Java ; Madagascar.)

3, 325·5—690·2 mm., Pondicherry (*topotypes*).

Distribution.—From the Red Sea, Madagascar and India to Malaya, Indo-China, China, Malay Archipelago, Melanesia and Hawaii.

4. **Galeocerdo cuvieri** (Le Sueur)

1822. *Squalus cuvier* Le Sueur, *J. Acad. nat. Sci. Philadelphia*, Philadelphia, 2, p. 351. (North-west coast of New Holland.)

1, 115·5 mm., Karaikkal.

Distribution.—Widely distributed in all the warm seas of the world.

Order 2. RAJIFORMES

Family 1. RHINOBATIDAE

5. **Rhinobatos granulatus** Cuvier

1829. *Rhinobatus granulatus* Cuvier, *Règne Animal*, Paris, 2 (ed. 2), p. 396.
(Pondicherry.)

1, 500·0 mm., Karaikkal.

Distribution.—From the coasts of India, Ceylon, and Andamans to Burma, Malaya, Malay Archipelago, Thailand, Cochin China and China.

Family 2. TRYGONIDAE

6. **Dasyatis (Himantura) uarnak** (Forskål)

1665. *Raja uarnak* Forskål, *Descript. Animal* ; Hauniae, pp. viii, 18. (Arabia.)
2, 200·0 & 220·5 mm. wide, Pondicherry.

Distribution.—Widespread from the Red Sea and east coast of Africa to Malay Archipelago, Melanesia and Polynesia.

7. **Dasyatis (Amphotistius) zugei** Müller & Henle

1841. *Trygon zugei* Müller & Henle, *Syst. Beschr. Plagiostomen*, Berlin
p. 165, pl. 54. (Japan ; China ; Pondicherry ; India.)

2, about 102·0 mm. wide each, Tranquebar ; one, 165·0 mm. wide, Cuddalore.

Distribution.—From the coasts of India and Ceylon to Malaya, Cochin China, Java, Philippines and Japan.

8. Gymnura (Gymnura) micrura (Schneider)

1801. *Raja micrura* Schneider, *Syst. Ichth.*, Berlin, p. 360. (Surinam, Dutch Guiana.)

2, 216·0 and 251·5 mm. wide ; Kilingimedu, and Karaikkal.

Distribution.—From the coasts of India and Ceylon to Malaya, Siam, Indo-China and Malay Archipelago.

9. Gymnura (Gymnura) poecilura (Shaw)

1804. *Raja poecilura* Shaw, *General Zoology*, London, 5, p. 291. (Based on 'jenkee kunsul', Russell, 1803, *Fish. Coromandel*, 1, p. 4, pl. 6. (Vizagapatam.)

1, 225·0 mm. wide, mouth of R. Arasalar, Karaikkal.

Distribution.—From the Red Sea, India and Ceylon to the Malay Peninsula, Thailand, China, the Malay Archipelago, Philippines and Japan.

Family 3. MYLIOBATIDAE**10. Aetobatus flagellum (Bloch & Schn.)**

1801. *Raja flagellum* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 361, pl. 73. (Coromandel)

1, 300·0 mm. wide, Kilingimedu, Karaikkal.

Distribution.—Red sea, Madagascar, India, Burma and the Malay Archipelago.

Order 3. TORPEDINIFORMES**Family 1. TORPEDINIDAE****11. Narcine brunnea Annandale**

1909. *Narcine brunnea* Annandale, *Mem. Indian Mus.*, Calcutta, 2, p. 45, pl. 3a, fig. 2, 2a. (Hooghly river mouth.)

1, 165·5 mm., Sonakuppam, Cuddalore ; 4, 150·0—196·5 mm., Pondicherry.

Distribution.—Coasts of India and Ceylon and Philippines.

12. Narcine timlei (Bloch & Schn.)

1801. *Raja timlei* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 359. (Tranquebar.)

1, 235·5 mm., Kilingimedu, Karaikkal ; 8, 100·0 to 150·0 mm., Tranquebar (*topotypes*).

Distribution.—From the coasts of India and Ceylon to Malay Archipelago, China and Japan.

13. Narke dipterygia (Bloch & Schn.)

1801. *Raja dipterygia* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 359. (Tranquebar.)

2, about 165·0 mm. each, Tranquebar (*topotypes*) ; 2, 138·0 & 160·3 mm., Kilingimedu, Karaikkal.

Distribution.—From the coasts of India and Ceylon to Malaya, Indo-China, China, Philippines and Japan

Class II. TELEOSTOMI

Order 4. CLUPEIFORMES

Family 1. CLUPEIDAE

14. **Dussumieria acuta** Cuv. & Val.

1847. *Dussumieria acuta* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 20, p. 467, pl. 606. (Bombay ; Coromandel coast.)

7, 129·0 to 156·0 mm., Tranquebar, six, 144·5 to 138·5 mm., Pondicherry ; three, 148·5 to 178·5 mm., Kilingimedu, Karaikkal.

Distribution.—From the south coast of Arabia, India and Ceylon, Malaya, Malay Archipelago, China, Philippines and Australia (Coastal waters).

15. **Dussumieria hasselti** Bleeker

1851. *Dussumieria hasselti* Bleeker, *Nat. Tijds. Ned. Ind.*, Batavia, 1, p. 422. (Batavia ; Cheribon ; Samarang ; Surabaya.)

1, 159·5 mm., Tranquebar.

Distribution.—From India to Burma, Malaya, Malay Archipelago, Formosa and Queensland (Coastal waters).

16. **Sardinella fimbriata** (Cuv. & Val.)

1847. *Spatella fimbriata* Cuvier and Valenciennes, *Hist. Nat. Poiss.*, Paris, 20, p. 359, pl. dc. (Malabar.)

2, 116·0 and 151·5 mm., Kilingimedu, Karaikkal.

Distribution.—From India and Ceylon to Burma, Malaya, Malay Archipelago, Thailand, Indo-China and China (Coastal waters).

17. **Sardinella melanura** (Cuvier)

1829. *Clupea melanura* Cuvier, *Régne Animal*, Paris, 2, fed. 2, p. 318. (Based on *Clupanodon sinensis* (part) Lacepede, 1803, *Hist. Nat. Poiss.*, Paris, 5, pp. 468, 471, pl. 11, fig. 3, Asia.)

2, 135·0 mm., each Kilingimedu, Karaikkal.

Distribution.—From the east of Africa and Madagascar, India, Ceylon, Andamans to Malay Archipelago, Hainan, China, Micronesia and Polynesia. (Coastal waters.)

18. **Sardinella sindensis** (Day)

1878. *Clupea sindensis* Day, *Fish. India*, London, 1, p. 638, pl. 163, fig. 2. (Karachi.)

4, 108·5—115·5 mm., Pondicherry ; 2, ca. 145·0 mm. each Tranquebar.

Distribution.—From Seychelles and India to Malaya, Philippines, Formosa and to Ambonia. (Coastal waters.)

19. **Sardinella sirm** (Walbaum)

1792. *Clupea sirm* Walbaum, *Arte di Pisc.*, 3, p. 38 (on *Forskål*, 1775, *Descript. Animal.*, *Hauniae*, 17, Arabia.)

4, 156·0—169·8 mm., Pondicherry.

Distribution.—From the Red Sea, Arabia, east coast of Africa, India and Ceylon to Malay Archipelago, China, Micronesia and Polynesia (Coastal waters).

20. **Hilsa ilisha** (Ham.)

1822. *Clupanodon ilisha* Hamilton, *Fish Ganges*, Edinburgh, p. 243, pl. 19, Fig. 75. (Ganges estuaries ; Patna ; Goyalpara ; Calcutta ; Dacca.)

1, 180·0 mm., Mariamangalam, $3\frac{1}{2}$ miles west of Karaikkal ; 1, 117·5 mm., Sonakuppam, Cuddalore.

Distribution.—From the Persian Gulf, India and Ceylon to Burma and Philippines. (Coastal waters, entering rivers.)

21. **Pellona ditchela** (Cuv. & Val.)

1847. *Pellona ditchela* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 22, p. 314. (Based on *Ditchelee* Russell, 1803, *Fish. Coromandel*, 2, p. 72, pl. 188, Vizagapatam).

2, about 160·0 mm. each, Kilingimedu, Karaikkal.

Distribution.—From the east coast of Africa, Madagascar, India and Ceylon to Burma, Malaya, Malay Archipelago and also Queensland (Coastal waters).

22. **Opisthopterus tardoore** (Cuvier)

1829. *Pristigaster tardoore* Cuvier, *Règne Animal* ed. 2, Paris, 2, p. 321. (Based on *Tartoore* Russell, 1803, *Fish. Coromandel*, 11, p. 74, pl. 193. (Vizagapatam.)

4, 165·0 mm.—182·0 mm., Sonakuppam, Cuddalore, & 146·0—205·0 mm. ; Porto-Novo ; 2, 180·0 mm., Tranquebar ; 1, 160·0 mm., Veerapatnam, Pondicherry.

Distribution.—From India and Ceylon to Burma, Malaya, Malay Archipelago, Thailand and China (Coastal waters).

23. **Anodontostoma chacunda** (Hamilton)

1882. *Clupanodon chacunda* Hamilton, *Fish Ganges*, Edinburgh, pp. 246-383. (Gangetic estuaries.)

1, 190·0 mm., Sonakuppam, Cuddalore ; 2, about 770·0 mm. each, Kilingimedu, Karaikkal.

Distribution.—From India to Burma, Malaya, Thailand, Malay Archipelago, Philippines and Melanesia (Coastal waters).

Family 2. ENGRAULIDAE

24. **Setipinna taty** (Cuv. & Val.)

1848. *Engraulis taty* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 21, p. 60. (Pondicherry ; Malacca.)

1, 119·0 mm., Porto Novo ; 1, 133·0 mm., mouth of R. Arasalar, Karaikkal.

Distribution.—From the coasts of India and Ceylon to Burma, Malaya, Malay Archipelago, Thailand and China. (Coastal waters, entering rivers.)

25. Anchoviella commersonii (Lacèpède.)

1801. *Stolephorus commersonii* Lacèpède, *Hist. Nat. Poiss.*, Paris, **5**, pp. 381, 382, pl. 12, fig. 1. (Type-locality not given.)

15, 48·0—77·5 mm., Porto Novo ; 10, 62·5—65·0 mm., Tranquebar.

Distribution.—From the east coast of Africa, Mauritius, India and Ceylon to Malaya, Malay Archipelago, China, Philippines and Polynesia (Coastal waters).

26. Anchoviella indica (van Hasselt)

1823. *Engraulis indica* van Hasselt, *Algem. Konst. Letterbode*, p. 329. (Java.)
6, 60·0—74·5 mm., Kilingimedu, Karaikkal.

Distribution.—From the east coast of Africa and India to Malaya, Malay Archipelago, Philippines, Thailand, China, Melanesia and Polynesia (Coastal waters).

27. Anchoviella tri (Bleeker)

1852. *Engraulis tri* Bleeker, *Verh. Bat. Gen.*, Batavia, **24**, p. 40. (Batavia)
1, 132·0 mm., Sonakuppam, Cuddalore.

Distribution.—From India to Malaya, Malay Archipelago and Philippines (Coastal waters).

28. ThriSSocles dussumieri (Cuv. & Val.)

1848. *Engraulis dussumieri* Cuvier and Valenciennes, *Hist. Nat. Poiss.*, Paris, **21**, p. 69. (Type-locality not given.)

1, 140·0 mm., Porto Novo ; Two, 112·0 & 113·0 mm., Veerapatnam, Pondicherry.

Distribution.—From India to Malaya, Malay Archipelago and China (Coastal waters).

29. ThriSSocles malabaricus (Bloch)

1795. *Clupea malabaricus* Bloch, *Naturg. Ausland. Fische*, Berlin, **9**, p. 115, pl. 432. (Tranquebar.)

4, 75·0 mm.—93·0 mm., Vaithikuppam, Pondicherry.

Distribution.—East coast of Africa, India, Celebes and Philippines (Coastal waters).

30. ThriSSocles mystax (Bloch & Schn.)

1801. *Clupea mystax* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 426, pl. 183. (Malabar.)

2, ca, 130·5 mm. each, Pondicherry ; three, 130·0—186·0 mm., Tranquebar ; four, 55·0—132·0 mm., Kilingimedu, Karaikkal.

Distribution.—From India and Ceylon to Malaya, Malay Archipelago, Thailand, China and also Queensland (Coastal waters).

31. ThriSSocles purava (Hamilton)

1822. *Clupea purava* Hamilton, *Fish. Ganges*, Edinburgh, pp. 238, 382. (Gangetic estuaries.)

1, 112·0 mm., R. Sunnambar at Nonankuppam, Pondicherry.

Distribution.—India to Malay Archipelago (Coastal and estuarine waters).

32. *Thrirocles setirostris* (Brousonet)

1682. *Clupea setisostris* Broussonet, *Ichth.*, London, 1, pl. 2. (Tanna ; New Hebrides.)
 2, 129·5 & 135·0 mm., Sunnambar river at Nonankuppam, Pondicherry.

Distribution.—Widely distributed in the warm waters of the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Queensland and Polynesia (Coastal waters).

Family 3. CHIROCENTRIDAE

33. *Chirocentrus dorab* (Forskål)

1775. *Clupea dorab* Forskål, *Descript. Anim.*, Hauniae, pp. XII, 72. (Djedda, Red Sea.)
 1, 401·5 mm., Pondicherry ; 1, 460·5 mm., Karaikkal.

Distribution.—Widely distributed in the warm waters of the Indo-west Pacific ranging from the Red Sea and east coast of Africa to Australia and Melanesia (Coastal waters).

Family 4. CHANIDAE

34. *Chanos chanos* (Forskål)

1775. *Mugil chanos* Forskal, *Descript. Anim.*, Hauniae, pp. XIV, 74. (Djedda, Red Sea.)
 3, 87·0—95·0 mm., Kilingimedu, Karaikkal.

Distribution.—Widely distributed in the warm waters of the Indo-west Pacific ranging from the Red Sea to Japan, Australia, Melanesia and Polynesia (Coastal waters including lagoons).

Order 5. SCOPELIFORMES

Family 1. SYNODIDAE

35. *Harpodon nehereus* (Ham.)

1822. *Osmerus? nehereus* Hamilton, *Fish. Ganges*, Edinburgh, pp 209, 380. (Ganges mouth.)
 4, 162·0—205·5 mm., Tranquebar.

Distribution.—Widely distributed from the east coast of Africa to China and Australia (Coastal and estuarine waters, entering rivers).

36. *Saurida tumbil* (Bloch)

1395. *Salmo tumbil*, Bloch, *Naturg. Ausland. Fische*, Berlin, 9, p. 112, pl. 430. (Type-locality not given.)

2, 240·0 & 300·0 mm., Veerampatnam, Pondicherry ; 1, 173·0 mm. Kilingimedu, Karaikkal.

Distribution.—Widely distributed in the warm waters of the Indo-West Pacific, ranging from the east coast of Africa to Australia, Japan and Hawaii (Coastal waters).

Order 6. CYPRINIFORMES

Family 1. CYPRINIDAE

37. ***Chela clupeoides* (Bloch)**

1797. *Cyprinus clupeoides* Bloch, *Ichthyol. Hist. Nat.*, Paris, **12**, p. 49, pl. 408, fig. 2. (Tranquebar.)

11, 79.0—105.0 mm., Ponnaiyar River, S. E. of Madukkarai ; 3, 97.5—126.0 mm., Kakamurihe, Karaikkal ; 2, 72.0—81.5 mm., Bahur, 10 miles N. W. of Cuddalore ; 4, 95.5—120 mm., Usteri Tank ; 5, 70.0—92.5 mm., Ponnaiyar River, Cuddalore.

Distribution.—India (Cutch, Peninsular India and the Satpura mountains.). In Rivers, streams, ponds and tanks.

38. ***Chela laubuca* (Hamilton)**

1882. *Cypinus laubuca* Hamilton, *Fish. Ganges*, Edinburgh, p. 260. (Northern Bengal.)

9, 27.0—34.5 mm. Ammankulam, Karaikkal.

Distribution.—Ceylon, India, Burma, Thailand & Sumatra (Rivers, Streams, ponds and tanks).

39. ***Esomus barbatus* (Jerdon)**

1849. *Leuciscus barbatus* Jerdon, *Madras J. Lit. Sci.*, Madras, **15**, p. 322. (Mysore.)

16, 62.5—83.5 mm., Ponnaiyar R. Madukkarai, 46, 40.0—51.5 mm., Sunnambukalava, Pondicherry ; 15, 40.0—54.0 mm., Mariamangalam, Karaikkal ; 58.0 mm. Bahur, 10 miles north west of Cuddalore ; 20, 38.0—52.6 mm., Ammankulam, Karaikkal, 34, 25.0—51.0 mm.. Manampetta, 11 miles north west of Karaikkal, 7, 32.5—46.5 mm., Madukkarai, Pondicherry ; 10, 28.5—56.0 mm. Usteri Tank.

Distribution.—Peninsular India, (Rivers, streams, ponds, tanks and ditches).

40. ***Rasbora daniconius* (Hamilton)**

1882. *Cyprinus daniconius* Hamilton, *Fish. Ganges*, Edinburgh, pp. 327, 329, 391, pl. 15, f. 89. (Southern Bengal.)

28, 27.0—39.0 mm., Usteri Tank, two, 32.0 & 45.0 mm., Ponnaiyar River, Cuddalore.

Distribution.—Ceylon, India and Burma. (Rivers, streams, ponds and tanks.)

41. ***Labeo calbasu* (Hamilton)**

1822. *Cyprinus calbasu* Hamilton, *Fish. Ganges*, Edinburgh, pp. 297, 387, pl. 2, fig. 33. (Bengal.)

1, 151.0 mm., Ponnaiyar River, Madukkarai.

Distribution.—India and Burma. Also known from Thailand and China. (Deep pools in clear sluggish streams.)

42. ***Labeo boga* (Hamilton)**

1882. *Cyprinus boga* Hamilton, *Fish. Ganges*, Edinburgh, pp. 286, 386, pl. 28, fig. 80. (Brahmaputra river.)

6, 70.0 to 99.0 mm., Ponnaiyar River, Cuddalore, 5, 82.0 to 99.5 mm., Bahur, 10 miles N.W. of Cuddalore.

Distribution.—India and Burma. (Rivers.)

43. **Labeo kontius** (Jerdon)

1849. *Cyprinus kontius* Jerdon, *Mad. J. Lit. Sci.*, Madras, **15**, p. 302, (Cauvery river.)

1, 169·0 mm. Veeranam Lake, Lalpet.

Distribution.—Peninsular India. (Rivers.)

44. **Puntius chola** (Hamilton)

1882. *Cyprinus, chola* Hamilton, *Fish. Ganges*, Edinburgh, pp. 312, 389. (Bengal.)

1, 67·5 mm., Usteri tank ; 1, 54·0 mm., Madukkarai, Pondicherry ; 1, 67·0 mm., Ammankulam, Karaikkal ; 5, 47·0—91·5 mm., Bahur, 10 miles N. W. of Cuddalore ; 17, 58·0—75·0 mm., Ponnaiyar River, Madukkarai.

Distribution.—India and Burma. (Rivers, streams, lakes and tanks.)

45. **Puntius doraslis** (Jerdon)

1849. *Systemus dorsalis* Jerdon, *Madras J. Lit. Sci.*, Madras, **15**, p. 314. (Madras.)

15, 58·5—91·5 mm., Usteri Tank., 5, 54·0—61·0 mm., Kakamurihe, Karaikkal ; 5, 120·0—159·5 mm., Veeranam Lake, Lalpet ; 1, 69 mm., Ponnaiyar River, Madukkarai.

Distribution.—Peninsular India and Ceylon. (Rivers, streams, lakes and ponds.)

46. **Puntius filamentosus** (Cuv. & Val.)

1844. *Leuciscus filamentosus* Cuvier and Valenciennes, *Hist. Nat. Poiss.*, Paris, **17**, p. 96, pl. 492. (Alleppey.)

1, 65·0 mm., Usteri Tank ; 1, 132·0 mm., Veeranam Lake, Lalpet.

Distribution.—Ceylon and Peninsular India. (Rivers, streams, lakes and tanks.)

47. **Puntius sarana** (Hamilton)

1822. *Cyprinus sarana* Hamilton, *Fish. Ganges*, Edinburgh, pp. 307, 308. (Bengal.)

2, 109·0 to 119·0 mm., mouth of R. Gadilam, Cuddalore ; 3, 121·5—133·0 mm., Kakamurihe, Karaikkal ; 3, 93·0 to 129·5 mm., Usteri Tank ; 1, 207·0 mm., Veeranam Lake, Lalpet.

Distribution.—Ceylon, India & Burma. (Rivers, streams, ponds lakes and tanks.)

48. **Puntius (sarana) pinnauratus** Day

1865. *Cyclocheilichthys pinnauratus* Day, *Fish. Malabar*, London, p. 209, pl. 15, fig. 2. (Cochin.)

2, 121·5 and 126·0 mm., Usteri Tank.

Distribution.—Ceylon, India, Burma and Malaya. (Rivers, streams, Ponds, lakes and tanks.)

49. **Puntius sophore** (Hamilton)

1822. *Cyprinus sophore* Hamilton, *Fish. Ganges*, Edinburgh, pp. 310, 389.
(Bengal.)

96, 26·5—79·5 mm., Usteri Tank ; 38, 43·0—68·0 mm., Ponnaiyar River, Madukkarai ; 7, 42·0—55·0 mm., Madakardipet, 4½ miles north of Madukkarai ; 4, 53·5—79·0 mm., Ponnaiyar River, Cuddalore ; 2, 50·0 and 56·0 mm., Gadilam River, Cuddalore ; 16, 45·5—67·5 mm., Madukkarai, Pondicherry.

Distribution.—India, Burma and Yunnan. (Rivers, streams, lakes, ponds and tanks.)

Family 2. COBITIDAE

50. **Lepidocephalus thermalis** (Cuv. & Val.)

1846. *Cobitis thermalis* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 18, p. 78. (Ceylon.)

1, 41·5 mm., Bahur, 10 miles north-west of Cuddalore ; 2, 31·0 and 35·0 mm., Usteri Tank ; 3, 30·0—40·0 mm., Manampetta, Karaikkal.

Distribution.—Ceylon and Peninsular India. (Streams, lakes, tanks and pools.)

Family 3. ARIIDAE

51. **Osteogeniosus militaris** (Linnaeus)

1758. *Silurus militaris* Linnaeus, *Syst. Nat.* (ed. 10), London, p. 505. (Asia.)
2, ca. 200·0 mm. each, Tranquebar.

Distribution.—From the coasts of India to the Malay Archipelago. (Sea, estuaries and tidal rivers.)

52. **Tachysurus jella** (Day)

1878. *Arius jella* Day, *Fish. India*, p. 467, Pl. 106, fig. 3. (Coromandel coast.)

2, 35 mm. each, mouth of the Arasalar River, Karaikkal.

Distribution.—Along the east coast of India and Ceylon through the mouth of the Ganges eastwards as far as Burma (Sea, estuaries and tidal rivers).

Family 4. BAGRIDAЕ

53. **Mystus (Mystus) gulio** (Hamilton)

1822. *Pimelodus gulio* Hamilton, *Fish. Ganges*, Edinburgh, pp. 201, 379, pl. 23, fig. 66. (Gangetic estuaries.)

14, 65·5—85·0 mm., Poraiyar, Tranquebar, 45, 54·0—100·0 mm. Ponnaiyar River, Madukkarai.

Distribution.—From the coasts of India, Pakistan and Ceylon to the Malay Archipelago. (Estuaries and tidal rivers.)

54. *Mystus (Mystus) vittatus* (Bloch)

1797. *Silurus vittatus* Bloch, *Ichthyol. Hist. nat.*, Paris, 11, p. 40, 371, fig. 2.
(Tranquebar.)

45, 63·5—96·5 mm., Ponnaiyar River, Madukkarai ; 3, 79·0—86·0 mm., Usteri Tank.

Distribution.—Ceylon, India, Burma, and Siam. (Fresh water ponds and streams.)

Family 5. SCHILBEIDAE

55. *Pseudeutropius atherinoides* (Bloch)

1794. *Silurus atherinoides*, Bloch, *Naturg. Ausland. Fische*, Berlin, 8, p. 48,
pl. 371, fig. 1. (Tranquebar.)

2, 49·0 and 66·0 mm., Usteri Tank.

Distribution.—India and Burma. (Larger rivers.)

Order 7. ANGUILLIFORMES

Family 1. ANGUILLIDAE

56. *Anguilla bengalensis* (Gray and Hardw)

1822. *Muraena anguilla* Hamilton, *Fish. Ganges*, Edinburgh, p. 22. (Bengal.)
1, 465·0 mm. Backwaters of Pichavaram, Porto Novo.

Distribution.—India, Ceylon, Burma, Java and Celebes. (Catadromous, inhabiting fresh waters and spawning at sea.)

57. *Anguilla bicolor* McClelland

1845. *Anguilla bicolor* McClelland, *Calcutta J. nat. Hist.*, Calcutta, 5, p. 178,
t. 6, fig. 1. (Sandoway on the Malay coast.)

25, 47·5—120·0 mm., mouth of R. Gadilam Cuddalore ; 4, 66·0—119·0 mm., R. Ponnaiyar, Cuddalore.

Distribution.—Ceylon, India and Burma. (Catadromus, inhabiting fresh waters of coastal plains and spawning at sea.)

Family 2. MURAENIDAE

58. *Gymnothorax pseudothyrsoidea* (Bleeker)

1852. *Muraena pseudothyrsoidea* Bleeker, *Nat. Tijds. Ned. Ind.*, Batavia 3,
p. 778. (Macassar, Celebes.)

1, 600·0 mm., Sonakuppam, Cuddalore.

Distribution.—From Zanzibar, Muscat, Seychelles, Chagos Archipelagos and India to Malay Archipelago, and Darnley Island. (Coastal waters.)

59. *Gymnothorax punctata* (Bloch & Schn.)

1801. *Muraena punctatus* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 526.
(Tranquebar.)

1, 46·0 mm., Sunnambar river at Nonankuppam, Pondicherry.

Distribution.—India (Bay of Bengal) and Ceylon to the Malay Archipelago. (Coastal and estuarine waters, entering fresh water.)

Family 3. MURAENESOCIDAE

60. **Muraenesox arabicus** (Bloch & Schn.)

1801. *Muraena arabica* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 488.
(Based on *Muraena cinerea* Forskål, *Descript. Animal.*, pp. x, 22,
Arabia, pre-occupied by Bonnaterra 1788, ex Gronow, from Guinea.)

1, 600.0 mm., Keechankuppam, Nagapatnam.

Distribution.—From the Red Sea, east coast of Africa, and India to
Malaya, Malay Archipelago, China, Japan, Philippines and Australia.
(Shallow coastal inlets, brackish and salt water lagoons.)

Family 4. OPHICHTHYIDAE

61. **Bascanichthys deraniyagalai** Menon

1961. *Bascanichthys deraniyagalai* Menon, *J. zool. Soc. India*, Calcutta,
13, (1), p. 13. (Arasalar river.)

5, 188.0—600.0 mm., mouth of R. Arasalar, Karaikkal.

Distribution.—Karaikkal, Coromandel Coast, India. (Estuarine
waters.)

Order 8. BELONIFORMES

Family 1. BELONIDAE

62. **Xenentodon cancila** (Hamilton)

1822. *Esox cancila* Hamilton, *Fish Ganges*, Edinburgh, pp. 213, 380, pl. 27,
fig. 70. (Gangetic provinces.)

1889. *Belone cancila*, Day, *Faun. Brit. Ind. Fish*, **1**, p. 420, fig. 136.

7, 190.0—210.0 mm., Usteri Tank.

Distribution.—From India, Ceylon and Burma through Thailand to
Malay. (Coastal fresh waters.)

63. **Strongylura strongylura** (van Hasselt)

1823. *Belone strongylura* van Hasselt, *Algem. Konst. Letterbode*, **1**, p. 131.
(Batavia, Java.)

2, ca, 200.0 mm. each, Usteri Tank.

Distribution.—From the coasts of Iran, India and Ceylon to Burma,
China, Cochin China, Formosa, Malay Archipelago and N. Australia.
(Marine, entering estuaries.)

Family 2. HEMIRHAMPHIDAE

64. **Hyporhamphus gaimardi** (Cuv. & Val.)

1846. *Hemirhamphus gaimardi* Cuvier and Valenciennes, *Hist. Nat. Poiss.*,
Paris, **19**, p. 36. (Moluccas : Amboina ; New Guinea ; Port
Jackson.)

4, 129.0 mm. each, Vellar River, Porto Novo ; 2, 154.0 mm. each,
Kudikadu backwaters, Cuddalore ; 2, ca. 280.5 mm. each, Kilingimedu,
Karaikkal ; 1, 168.0 mm., Vainthikuppam, Pondicherry.

Distribution.—From Iran, India and Burma to Malay Archipelago,
Philippines, Amboina, New Guinea and Australia. (Sea and estuaries.)

Order 9. SYNGNATHIFORMES

Family 1. SYNGNATHIDAE

65. ***Ichthyocampus carce* (Hamilton)**

1822. *Syngnathus carce* Hamilton, *Fish. Ganges*, Edinburgh, p. 13. (Gangatic tide-ways.)
4, 73·5—85·5 mm., mouth of R. Gadilam, Cuddalore.

Distribution.—From India and Ceylon to Malaya and Malay Archipelago. (Sea and estuaries entering fresh waters.)

66. ***Microphis brachyurus* Bleeker**

1853. *Syngnathus brachyurus* Bleeker, *Verh. Bat. Genootsch.*, 25, Troskieuwige Visschen, Batavia, p. 16. (East Indian Archipelago.)
1, 99·0 mm., R. Ponnaiyar, Cuddalore.

Distribution.—Widely distributed in the Indo-West Pacific ranging from east coast of Africa to Japan and Polynesia. (Fresh water rivers, and brackish and salt water estuaries.)

67. ***Doryichthys cunculus* (Hamilton)**

1822. *Doryichthys cunculus* Hamilton, *Fish. Ganges*, Edinburgh, pp. 12, 362.
(Estuaries near Calcutta.)
1, 120·0 mm., R. Ponnaiyar, Cuddalore ; 1, 157·5 mm., mouth of R. Gadilam, Cuddalore.

Distribution.—India. (Estuaries and tidal rivers.)

*68. ***Doryichthys* sp.**

1, 72·0 mm., R. Gadilam, Cuddalore.

Distribution.—Cuddalore, Coromandel coast, India. (Estuarine waters.)

Order 10. CYPRINODONTIFORMES

Family 1. CYPRINODONTIDAE

69. ***Aplocheilus panchax* (Hamilton)**

1822. *Esox panchax* Hamilton, *Fish. Ganges*, Edinburgh, pp. 211, 380,
pl. 3, fig. 69. (Bengal.)
50, 10·0—31·0 mm., Panayadikuppam, Madukkarai ; 22, 19·0—
23·0 mm., Usteri Tank.

Distribution.—India, Burma, Malaya, Thailand and Malay Archipelago. (Fresh and brackish waters.)

70. ***Oryzias melastigma* (McClelland)**

1839. *Aplocheilous melastigma* McClelland, *Asiatic Res.*, Calcutta, 19,
pp. 301, 427, pl. 42, fig. 3. (Calcutta.)
23, 15·5—27·0 mm., Sunnambukalawa, Pondicherry ; 234, 22·5—
34·0 mm., R. Ponnaiyar, Cuddalore ; 55, 14·0—33·5 mm., Kudikadu
back waters, Cuddalore.

Distribution.—From coasts of Ceylon and Peninsular India through Lower Bengal to Burma. (Brackish waters and estuaries.)

*This is apparently new and is being described elsewhere.

Order 11. MUGILIFORMES

Family 1. SPHYRAENOIDAE

71. *Sphyraena jello* (Cuv. & Val.)

1829. *Sphyraena jello* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 3, p. 349. (Based on *jellow* Russel, 1803, *Fish. Coromandel*, 2, p. 59, pl. 174, Vizagapatam.)

2, ca. 300.0 mm., Pondicherry ; 1, 380.0 mm., Kilingimedu, Karaikkal.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Riu Kiu Islands and to New Caledonia and Fiji Islands. (Sea and brackish waters.)

72. *Sphyraena obtusata* (Cuv. & Val.)

1829. *Sphyraena obtusata* Cuvier and Valenciennes, *Hist. Nat. Poiss.*, Paris, 6, p. 350. (Pondicherry ; Bourbon ; Malabar ; Port Jackson.)

1, 242.0 mm., Tranquebar Coast ; 2, ca. 245.0 mm., Veerampatnam, Pondicherry (*topotypes*) ; 1, 230.0 mm., Kilingimedu, Karaikkal.

Distribution.—From the Red Sea and east coast of Africa to Riu Kiu Island, Philippines, Australia, New Zealand and Fiji Islands. (Coastal waters.)

Family 2. MUGILIDAE

73. *Chelon vaigiensis* (Quoy & Gaimard)

1824. *Mugil vaigiensis* Quoy & Gaimard, *Voyage de "l'Uranie" et "La Physicienne"* par Freycinet, Zool., Paris, p. 337, pl. 59, fig. 2. (Waigiou.)

3, 105.0—177 mm., Kudekadu back waters, Cuddalore.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and the east coast of Africa to Australia and Polynesia. (Coastal, estuaries and fresh waters.)

74. *Mugil cephalus* (Linnaeus)

1758. *Mugil cephalus* Linnaeus, *Syst. Nat.*, (ed. 10), London, pl. 1, p. 316. ("Oceano Europaea".)

1, 195.0 mm., Kudikadu back waters, Cuddalore.

Distribution.—Widely distributed in the tropical and temperate waters of the Indian, S. Atlantic and S. Pacific Oceans. (Common in estuaries, entering fresh water.)

75. *Mugil parsia* (Hamilton)

1822. *Mugil parsia* Hamilton, *Fish. Ganges*, Edinburgh, p. 215, pl. 17, fig. 71. (Hooghly river.)

3, 104.0—133.5 mm., Kudikadu backwaters, Cuddalore ; 90, 33.5—94.0 mm., R. Gadilam, Cuddalore ; 3, 80.5—100.4 mm., Veerampatnam, Pondicherry ; 2, 90.0 mm., and 95.0 mm., Ponnaiyar R., Cuddalore ; 11, 65.0 mm.—165.0 mm., Vellar R., Porto Novo.

Distribution.—India and Ceylon to Malaya, Thailand, Malay Archipelago, Philippines, Guam, New Guinea and Australia. (Coastal, entering estuaries.)

76. *Mugil speigleri* Bleeker

1858. *Mugil speigleri* Bleeker, *Nat. Tyds. Ned. Ind.*, Batavia, 16, p. 386.
(Batavia.)

1, 170·0 mm., Potro Novo.

Distribution.—From Baluchistan and coast of India to Malaya and Malay Archipelago. (Coastal waters.)

77. *Mugil tade* Forskål

1775. *Muglitade* Forskal, *Descr. Anim.*, Hauniae, pp. 14, 74. (Arabia.)

1, 274·0 mm., Poraiyar, Tranquebar ; 4, 122·0—150·0 mm., Gadilam R., Cuddalore.

Distribution.—From the Red Sea, Sokotra, India and Ceylon to Malaya, Malay Archipelago, China, Philippines, Marianas, Guam and Australia. (Coastal and estuarine waters and tidal rivers.)

Order 12. POLYNEMIFORMES

Family 1. POLYNEMIDAE

78. *polynemus heptadactylus* Cuv. & Val.

1829. *Polynemus heptadactylus* Cuvier and Valenciennes, *Hist. Nat. Poiss.*, Paris, 3, p. 300. (Batavia.)

1, 116·0 mm., Tranquebar.

Distribution.—From coast of India and Ceylon to Malaya and Malay Archipelago. (Coastal and brackish waters.)

79. *Polydactylus sextarius* (Bloch & Schn.)

1801. *Polynemus sextarius* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 18, pl. 4. (Tranquebar.)

1, 154·0 mm., Keechankuppam, Nagapatnam ; 7, 124 to 177·0 mm., Tranquebar (*topotypes*) ; 1, 142·0 mm., Veerampatnam, Pondicherry ; 1, 151·5 mm., Kilingimedu, Karaikkal.

Distribution.—From east coast of Africa, India and Ceylon to Malaya, Malay Archipelago, Thailand and China. (Coastal waters.)

80. *Polydactylus indicus* (Shaw)

1804. *Polynemus indicus* Shaw, *General Zool.*, London, 5, (1), p. 155. (Vizagapatnam.)

1, 220·0 mm., Sonakuppam, Cuddalore ; 2, ca, 300 mm., Kudikadu back waters, Cuddalore ; 1, 225·0 mm., Keechankuppam, Nagapatnam.

Distribution.—From east coast of Africa, Madagascar, Mauritius, India and Ceylon to Burma, Malaya, Malay Archipelago and Australia. (Coastal waters and rivers.)

Order 13. OPHIOCEPHALIFORMES

Family 1. CHANNIDAE

82. *Channa gachua* (Hamilton)

1822. *Ophiocephalus gachua* Hamilton, *Fish. Ganges*, Edinburgh, pp. 68, 367, pl. 21, fig. 21. (Bengal.)

2, 80·0 and 31·5 mm., Usteri Tank ; 2, 62·0 and 93·0 mm., Gadilam R., Cuddalore ; 7, 32·0—83·5 mm., Ponnaiyar R., Cuddalore ; 1, 153·0 mm., Ponnaiyar R., Mudukkarai.

Distribution.—From Baluchistan and Afghanistan, India and Andaman to Burma, Malaya, Malay Archipelago, Indo-China and Thailand. (Fresh water streams and stagnant pools of coastal plains.)

83. Channa leucopunctata (Sykes)

1841. *Ophiocephalus leucopunctatus* Sykes, *Trans. Zool. Soc. Lond.*, London, 2, p. 352, pl. 60, fig. 3. ("Goreh river, Dukhan".)

1, 264·0 mm., Kakakurughi, Karaikkal ; 2, 240·0 and 250·0 mm., Thannikoil, Cuddalore.

Distribution.—Peninsular India and Deccan. (Rivers, large tanks and lakes.)

84. Channa punctata (Bloch)

1793. *Ophicephalus punctatus* Bloch, *Naturg. ausland. Fische*, Berlin, 7, p. 139, pl. 358. (Malabar.)

5, 65·0—119·0 mm., Madakardipet, 4½ miles north of Madukkarai; 77·0—94·5 mm., Usteri tank ; 11, 80·0—142·0 mm., Ponnaiyar R., Madukkarai.

Distribution.—Ceylon, India, Burma and Malaya. (Large fresh water tanks and ponds ; rarely rivers.)

85. Channa striata (Bloch)

1793. *Ophicephalus striatus* Bloch, *Naturg. ausland. Fische*, Berlin, 10 p. 141, pl. 359. (Malabar.)

1, 181·5 mm., Usteri tank.

Distribution.—From India and Ceylon to Malay, Malaya Archipelago, Thailand, China and Philippines. (Rivers, canals, lakes, ponds and marshes.)

Order 14. PERCIFORMES

Family 1. AMBASSIDAE

86. Ambassis commersoni Cuv. & Val.

1828. *Ambassis commersonii* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 2, p. 176. (Bourbon Island, Mediterranean ; Pondicherry ; Mahe ; Java.)

7, 61·5—94·0 mm., Gadilam R., Cuddalore ; 18, 44·5—99·0 mm., Kudikadu back waters, Cuddalore ; 1, 90·0 mm., Veerapatnam, 3 miles south of Pondicherry, 3,90·0—135·0 mm., Keechankuppam, Nagapatnam.

Distribution.—From Red Sea, east coast of Africa, Madagascar, Mauritius, Seychelles, coasts of India and Ceylon to Thailand, Malay, Archipelago, Philippines and Australia. (Estuaries, ascending rivers.)

87. Ambassis gymnocephalus (Lacépède)

1802. *Lutjanus gymnocephalus* Lacépède, *Hist. nat. Poiss.*, Paris, pp. 181, 216. (Indo-Pacific.)

2, 53·5 mm. each, Kudikadu backwaters, Cuddalore ; 24, 22·0—42·0 mm., Ponnaiyar R., Cuddalore ; 14, 50·0—75·5 mm., Sunnambar R. at Nononkuppam, Pondicherry.

Distribution.—From coasts of east Africa, India and Ceylon to Malaya, Malay Archipelago, Thailand, China, Philippines and Australia. (Estuarine, entering rivers.)

88. Ambassis ranga (Hamilton)

1822. *Ambassis ranga* Hamilton, *Fish. Ganges*, Edinburgh, pp. 113, 371, pl. 16, fig. 38. (Gangetic Provinces.)

1, 35·0 mm., Usteri Tank.

Distribution.—India, Burma and Thailand. (Fresh water streams, lakes, tanks and ponds.)

Family 2. EPINEPHELIDAE

89. ***Epinephelus tauvina* (Forskål)**

1775. *Percatauvina* Forskal, *Descript. Animal.*, Hauniae, 11, p. 39. (Djedda, Red Sea.)

2, 202·0 and 218·0 mm. Tranquebar coast.

Distribution.—Widely distributed from the coast of Africa to Hawaiiā Islands and to Australia, northwards as far as south China. (Coastal waters.)

Family 3. THERAPONIDAE

90. ***Therapon jarbua* (Forskål)**

1775. *Seiaena jarbua* Forskal, *Descript. Animal.*, Hauniae, 12, p. 50. (Djedda, Red Sea.)

2, 51·0 and 84·0 mm., Ponnaiyar R., Cuddalore ; 1, 148·5 mm., Kudikadu, Cuddalore ; 7, 54·0—141·5 mm., Veerapatnam, Pondicherry ; 1, 127·5 mm., brackish waters near Manikaran-thope, Pondicherry ; 1, 166·0 mm., Kilingimedu, Karaikkal ; 1, 71·5 mm., Poraiyar, Tranquebar.

Distribution.—Widely distributed in the Indo-West Pacific ranging from the Red Sea and east coast of Africa to Japan and to Australia and to Polynesia. (Coastal waters and estuaries.)

91. ***Therapon puta* Cuv. & Val.**

1829. *Therapon puta* Cuvier and Valenciennes, *Hist. nat. Poiss.*, Paris, 3, p. 131. (Pondicherry, Mahe.)

6, 80·5—112·0 mm., Veerapatnam, Pondicherry (*topotypes*) ; 5, 117·0—148·0 mm., Kilingimedu, Karaikkal.

Distribution.—Indo-West Pacific, ranging from the Red Sea and the east coast of Africa to New Britain (Bismarck Archipelago), and Queensland. (Coastal and brackish waters.)

92. ***Pelates quadrilineatus* (Bloch)**

1790. *Holocentrus quadrilineatus* Bloch, *Naturg. ausland. Fische*, Berlin, 4, p. 82, pl. 238. ("The Orient".)

2, 137·5 and 145·0 mm., Kilingimedu, Karaikkal ; 1, 109·0 mm. back waters near Manikaran-thope, Pondicherry.

Distribution.—Widespread in the Indo-West Pacific, extending from Red Sea and east coast of Africa through Malay Archipelago to North Australia. (Coastal and brackish waters.)

Family 4. SILLAGINIDAE

93. ***Sillago sihama* (Forskål)**

1775. *Atherina sihama* Forskal, *Desctr. Animal.*, Hauniae, pp. 13, 70. (Lohaja, Red Sea.)

5, 88·5—150·0 mm., Veerapatnam, Pondicherry ; 2, 147·0 and 204·0 mm. ; 1, 195·0 mm., Sonakuppam, Cuddalore.

Distribution.—Widely distributed from the Red Sea and east coast of Africa to Australia, Japan and Polynesia. (Coastal waters and estuaries.)

Family 5. LACTARIIDAE

94. *Lactarius lactarius* (Bloch & Schn.)

1801. *Scomber lactarius* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 31. (Tranquebar.)

1, 158.0 mm., Tranquebar, (*topotype*) ; 3, 160.0 mm., Veerampatnam, Pondicherry ; 1, 173.0 mm., Porto Novo coast ; 3, 155.0—200.0 mm., Kilingimedu, Karaikkal.

Distribution.—Widely distributed from the Red Sea and east coast of Africa to Japan, Australia and Polynesia. (Coastal waters.)

Family 6. RACHYCENTRIDAE

95. *Rachycentron canadus* (Linnaeus)

1766. *Gasterosteus canadus* Linnaeus, *Syst. Nat.* (ed. 12), London, 1, p. 491. (Carolina.)

1 460.0 mm., Pondicherry ; 1, 287.0 mm., Tranquebar.

Distribution.—In all warm seas, except the west coast of America. (Pelagic in coastal waters.)

Family 7. CARANGIDAE

96. *Alectis indica* (Rüppell)

1828. *Scyris indicus* Rüppell, *Atlas Fische Roth. Meer.*, Frankfurt, p. 128, pl. 33, fig. 1. (Djedda, Red Sea.)

1, 120.0 mm., Cuddalore.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and Delagoa Bay to Hawaii Islands. (Coastal waters.)

97. *Atropus atropus* (Bloch & Schn.)

1801. *Brama atropos* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 98. (Tranquebar.)

3, 150.0—190.5 mm., Tranquebar (*topotypes*) ; 3, 128.0—175.0 mm., Kilingimedu, Karaikkal.

Distribution.—Widespread in the warmer Indo-West Pacific, ranging from east coast of Africa to China and Polynesia. (Coastal waters.)

98. *Caranx* (*Caranx*) *carangus* (Bloch)

1793. *Oscomber carangus* Bloch, *Naturg. ausland. Fische*, Berlin, 7, p. 69. (Antilles.)

1, 198.0 mm., Sonakuppam, Cuddalore ; 1, 80.0 mm., Pondicherry ; 1, 119.0 mm., Sunnambur R., at Nonamkuppam, Pondicherry ; 2, 171.0 and 190.0 mm., Kilingimedu, Karaikkal.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Hawaii Islands and probably also Atlantic coast of tropical America. (Coastal waters.)

99. *Caranx* (*Carangoides*) *malabaricus* (Bloch & Schn.)

1801. *Scomber malabaricus* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 31. (Tranquebar.)

2, 163.0 and 170.0 mm., Tranquebar (*topotypes*).

Distribution.—Widespread, ranging from Red Sea and east and south coast of Africa to Australia, Philippines and Japan. (Coastal waters.)

100. *Caranx (Selar) kalla* (Cuv. & Val.)

1833. *Caranx kalla* Cuvier and Valenciennes *Hist. nat. Poiss.*, Paris, 9, p. 49. (Malabar ; Mahe ; Red Sea.)

1889. *Caranx kalla*, Day, *Faun. Brit. Ind., Fish*, 2, p. 160.

1, 130·0 mm., Tranquebar.

Distribution.—Widely distributed from the Red Sea and east coast of Africa to Australia and Japan. (Coastal, shallow and deeper waters.)

101. *Caranx (Selaroides) leptolepis* (Cuv. & Val.)

1883. *Caranx leptolepis* Cuvier and Valenciennes, *Hist. nat. Poiss.*, Paris, 9, p. 63. (Java.)

1, 148·0 mm., Cuddalore.

Distribution.—From the coast of Arabia, India and Ceylon to China, Riu Kiu, Formosa, Philippines and Queensland. (Coastal waters.)

102. *Megalaspis cordyla* (Linnaeus)

1758. *Scomber cordyla* Linnaeus, *Syst. Nat.* (ed. 10), London, Pt. 1, p. 298. (East Indies.)

2, 265·0 mm. each, Kilingimedu, Karaikkal ; 1, 216·0 mm., Tranquebar.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Polynesia and Hawaii. (Coastal waters.)

103. *Chorinemus sancti-petri* Cuv. & Val.

1831. *Chorinemus sancti-petri* Cuvier and Valenciennes, *Hist. nat. Poiss.*, Paris, 8, p. 279. (Malacca.)

2, 290·0 mm., each, Kilingimedu, Karaikkal ; 1, 300·0 mm., Tranquebar ; 1, 131·5 mm., Veerapatnam, Pondicherry.

Distribution.—Widely distributed in the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Polynesia and Hawaii. (Coastal waters.)

104. *Chorinemus lysan* (Forskal)

1775. *Scomber lysan* Forskal, *Descr. Animal.*, Hauniae, p. 54. (Djedda ; Lohaja.)

1, 325·0 mm., Pondicherry.

Distribution.—Widespread in the Indo-West Pacific, extending from Red Sea and east coast of Africa to Japan, Australia, Melanesia and Polynesia. (Coastal waters.)

105. *Chorinemus tala* Cuv. & Val.

1831. *Chorinemus tala* Cuvier & Valenciennes, *Hist. nat. Poiss.*, Paris, 8, p. 317. (Malabar.)

6, 160·0 to 250·0 mm., Pondicherry.

Distribution.—From the Red Sea and east coast of Africa to Australia, Thailand and the Philippines. (Coastal waters.)

Family 8. MENIDAE

106. **Mene maculata** (Bloch & Schn.)

1801. *Zeus maculatus* Bloch & Schenider, *Syst. Ichth.*, Berlin, p. 95. (Tranquebar.).
5, ca. 200 mm. each, Tranquebar (*topotypes*).

Distribution.—Widespread from east coast of Africa to Queensland and Japan. (Coastal waters.)

Family 9. LUTJANIDAE

107. **Lutjanus argentimaculatus** (Forskål)

1775. *Sciaena argentimaculatus* Forskål, *Descr. Animal.*, Hauniae, pp. 11, 47. (Arabia.)

10, 56·0-95·0 mm., Sunnambar R. at Nonamkuppam, Pondicherry.

Distribution.—Widespread in the Indo-West Pacific, ranging from the Red Sea and east coast of Africa to Riu Kiu Islands, Australia and Polynesia. (Coastal entering estuaries.)

108. **Lutjanus johnii** (Bloch)

1792. *Anthias johnii* Bloch, *Naturg. ausland. Fische*, Berlin, 6, p. 113, pl. 318, (Sura-tta.)

2, 180·0 and 191·0 mm., mouth of Arasalar R., Karaikkal.

Distribution.—Widespread from the east coast of Africa to Philippines, China, Australia and Polynesia. (Coastal waters.)

Family 10. NEMIPTERIDAE

109. **Nemipterus japonicus** (Bloch)

1791. *Sparus japonicus* Bloch, *Naturg. ausland. Fische*, Berlin, 5, p. 110, pl. 227, fig. 1. (Type-locality not given.)

1, 200·0 mm., Veerapatnam, Pondicherry ; 2, 165·0 mm. each, Porto Novo.

Distribution.—Widespread form the Red Sea and east coast of Africa to China and the Philippines. (Coastal waters.)

Family 11 LEIOGNATHIDAE

110. **Leiognathus dussumieri** (Cuv. & Val.)

1835. *Equula dussumieri* Cuvier & Valenciennes, *Hist. nat. Poiss.*, Paris, 10, p. 56, pl. 283. (Coromandel coast.)

1, 133·5 mm., Sonakuppam, Cuddalore.

Distribution.—From Madagascar and coasts of India, Ceylon and Andamans to Australia and Polynesia. (Coastal waters.)

111. **Leiognathus equulus** (Forskål)

1775. *Scomber equula* Forskal, *Descr. Animal.*, Hauniae, pp. 12, 58. (Arabia.)

3, 133·0 mm.—240·0 mm., Sunnambar R. at Nonankuppam, Pondicherry ; 3, 105·0—220·0 mm., Sonakuppam, Cuddalore ; 1, 114·5 mm.

Veerampatnam, Pondicherry.

Distribution.—Widespread in the Indo-West Pacific, ranging from Red Sea and east coast of Africa to Philippines, Japan, Australia and Polynesia. (Coastal water, ascending rivers.)

112. *Leiognathus fasciatus* (Lacépède)

1803. *Clupea fasciata* Lacépède, *Hist. nat. Poiss.*, Paris, 5, pp. 425, 460. (Mauritius.)

4, 32·0-55·5 mm., Sonnambar R., at Nonankuppam, Pondicherry; 1,61·5 mm., Kudikadu backwaters, Cuddalore.

Distribution.—Widespread from Red Sea Zanzibar, Madagascar, India and Ceylon to Philippines, Australia and Polynesia. (Coastal waters.)

113. *Leiognathus insidiator* (Bloch)

1787. *Zeus insidiator* Bloch, *Naturg. ausland. Fische*, Berlin, 3, p. 41, pl. 191, figs. 2-3. (Suratte.)

1889. *Equula insidiatrix* Day, *Faun. Brit. Ind., Fish*, 2, p. 191.

3, 100·0—110·0 mm., Sonakuppam, Cuddalore ; 3, 86·0—100·0 mm., Kilingimedu, Karaikkal ; 1, 106·0 mm., Pondicherry : 6, 50·0—60·0 mm., Porto Novo ; 1, 49·5 mm., Veerampatnam, Pondicherry.

Distribution.—Widespread from the east coast of Africa to China, Philippines and Polynesia. (Coastal and estuarine waters.)

114. *Leiognathus lineolatus* (Cuv. & Val.)

1835. *Equula lineolata*, Cuvier & Valenciennes, *Hist. Nat. Poiss.*, Paris, 10, p. 86. (Java ; Anjer.)

2, ca, 116·0 mm. each, Sonakuppam, Cuddalore., 1, 134·0 mm. Veerampatnam, Pondicherry.

Distribution.—From Madagascar, India and Ceylon to Malaya, Malay Archipelago, Japan and Queensland. (Coastal waters.)

115. *Leiognathus ruconius* (Hamilton)

1822. *Chanda ruconius* Hamilton, *Fish. Ganges*, Edinburgh, pp. 106, 371, pl. 12, fig. 35. (Ganges estuaries.)

1, 40·0 mm., Veerampatnam, Pondicherry.

Distribution.—Widespread in the Indo-west Pacific, ranging from South Africa to Australia, Philippines and Formosa. (Shallow coastal and estuarine waters.)

116. *Leiognathus splendens* (Cuvier)

1829. *Equula splendens*, Cuvier, *Régne Animal* (ed. 2), Paris, 2, p. 212. (Based on *Gomorah korah* Russell, 1803, *Fish. Coromandel*, 1, p. 48, fig. 61, Vizagapatam.)

1, 124·0 mm., Kilingimedu, Karaikkal ; 4, 90·0-120·0 mm., Veerampatnam, Pondicherry ; 2, 105·5 mm. each, Sonakuppam, Cuddalore.

Distribution.—From Red Sea, Madagascar, Muritius, Coasts of India and Ceylon to Malay, Malaya Archipelago, Thailand, China, Formosa, Philippines, Queensland and Polynesia. (Coastal waters.)

117. **Gazza minuta** (Bloch)

1797. *Scomber minuta* Bloch, *Syst. Ichth.*, Berlin, p. 110, pl. 429, fig. 2. (Malabar.)
 4, 87·0—128·0 mm., Kilingimedu, Karaikkal ; 1, 103·5 mm., Pondicherry ; 2, 135·0 and 154·5 mm., Porto Novo ; 1, 124·5 mm., Sonakuppam, Cuddalore.

Distribution.—Widespread in the Indo-West Pacific, ranging from the Red Sea and east Coast of Africa to Philippines, Formosa, Queensland and Polynesia. (Coastal waters.)

Family 12. GERRIDAE

118. **Gerres filamentosus** (Cuvier)

1829. *Gerres filamentosus* Cuvier, *Règne Animal* (ed. 2), Paris, 2, p. 188. (Vizagapatam.)

1, 130·0 mm., Kilingimedu, Karaikkal ; 1, 191·5 mm., Veerampatnam, Pondicherry—2, ca. 115·0 mm. each, Kudikadu backwaters, Cuddalore ; 1, 200·0 mm., Tranquebar

Distribution.—Widespread from the Red Sea and east Coast of Africa to Philippines, Japan, Queensland and Melanesia. (Coastal and estuarine waters.)

119. **Gerres setifer** (Hamilton)

1822. *Chanda setifer* Hamilton, *Fish. Ganges*, Edinburgh, pp. 105, 370. (Ganges estuaries.)

1, 85·0 mm., Tranquebar.

Distribution.—Coasts of India, Ceylon, Burma, Malaya, Thailand and Hongkong. (Coastal and estuarine waters.)

Family 13. SCIAENIDAE

120. **Johnius carutta** (Bloch)

1793. *Johnius carutta* Bloch, *Naturg. ausland. Fische*, Berlin, 7, p. 133, pl. 536. (Tranquebar.)

3, 43·5 to 114·0 mm., Tranquebar (*topotypes*) ; 1, 146·0 mm., Sonakuppam, Cuddalore.

Distribution.—India, Ceylon, Malaya, Malay Archipelago, Thailand and South China. (Coastal waters.)

121. **Johnius maculatus** (Bloch & Schn.)

1801. *Johnius maculatus* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 75. (Tranquebar.)

1, 148·0 mm., Keechankuppam, Nagapatnam ; 5, 117·0-159·0 mm., Kilingimedu, Karaikkal.

Distribution.—Coasts of India and Ceylon. (Coastal waters.)

122. **Otolithes ruber** (Bloch & Schn.)

1801. *Johnius ruber* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 75, pl. 17. (Tranquebar.)

1, 203·5 mm., Tranquebar (*topotype*).

Distribution.—East coasts of Africa, India, Ceylon and Malaya. (Coastal waters.)

123. **Otolithes argenteus** Cuv. & Val.

1830. *Otolithus argenteus* Cuvier and Valenciennes, *Hist. nat. Poiss.*, Paris, 5, p. 62. (Batavia ; Malabar ; Malacca.)

1, 129·0 mm., Kilingimedu, Karaikkal ; 3, 200·0—238·0 mm., Sonakuppam, Cuddalore.

Distribution.—Widely distributed from the east coast of Africa to southern China, Philippines and Queensland. (Coastal and estuarine waters.)

124. **Pseudosciaena aneus** (Bloch)

1793. *Johnius aneus* Bloch, *Naturg. ausland. Fische*, Berlin, 7, p. 135. (Malabar.)

1, 234·0 mm., Proto Novo.

Distribution.—Coasts of India, Ceylon and Andamans to South China, Malay Archipelago and Philippines. (Coastal waters and mouths of rivers.)

125. **Pseudosciaena diacanthus** (Lacépède)

1802. *Lutjanus diacanthus* Lacépède, *Hist. nat. Poiss.*, Paris, 4, pp. 195, 240 (Type-locality not given.)

5, 90·0—193·0 mm., Keechankuppam, Nagapatnam ; 3, 230·0—300·0 mm., Cuddalore.

Distribution.—Coasts of India, Ceylon, Burma, Malaya, Malay Archipelago, Thailand, South China and Philippines. (Coastal and estuarine waters.)

126. **Pseudosciaena coibor** (Hamilton)

1822. *Bola coibor* Hamilton, *Fish. Ganges*, Edinburgh, pp. 78, 362. (Ganges River as far as Kanpur ; Jamna River to Agra.)

1, 169·0 mm., Sunnambar R. at Nonankuppam, Pondicherry ; 248·0 mm., Tranquebar.

Distribution.—Seas around India, Ceylon, Malaya, Malay Archipelago and Australia. (Coastal waters and estuaries.)

127. **Pseudosciaena axillaris** (Cuv. & Val.)

1830. *Corvina axillaris* Cuvier and Valenciennes, *Hist. nat. Poiss.*, Paris, 5, p. 112. (Malabar.)

1, 180·0 mm., Sonakuppam, Cuddalore.

Distribution.—Coasts of India, Ceylon, Malay Archipelago, Thailand, South China, Philippines, Queenslands and Melanesia. (Coastal waters and mouth of rivers.)

128. **Sciaena dussumieri** (Cuv. & Val.)

1833. *Umbrina dussumieri* Cuvier & Valenciennes, *Hist. nat. Poiss.*, Paris, 9, p. 481. (Coromandel coasts.)

2, 150·0 and 160·0 mm., Veerampatnam, Pondicherry ; 1, 225·0 mm., Kilingimedu, Karaikkal ; 1, 119·0 mm., Porto Novo.

Distribution.—East coast of Africa, Madagascar, India, Ceylon, Malaya, Malay Archipelago, Indo-China, S. China, Formosa and Philippines. (Coastal waters.)

129. **Sciaena macroptera** (Bleeker)

1853. *Umbrina macropterus* Bleeker, *Nat. Tijds. ned. Ind.*, Batavia, 4, p. 254. (Sumatra.)

1, 203·0 mm., Tranquebar.

Distribution.—Natal, India, Ceylon, and Malay Archipelago. (Coastal waters.)

Family 14. LETHRINIDAE

130. **Lethrinus nebulosus** (Forskål)

1775. *Sciaena nebulosa* Forskal, *Descr. Animal*, Hauniae, pp. 12, 52. (Arabia.)

1, 265·0 mm., Sonakuppam, Cuddalore.

Distribution.—Widespread from the Red Sea and east coast of Africa to China, Philippines, Australia and Polynesia. (Coastal waters.)

Family 15. MULLIDAE

131. **Upeneus vittatus** (Forskål)

1775. *Mullus vittatus* Forskal, *Descr. Animal*, Hauniae, pp. 10, 31. (Djedda, Red Sea.)

1, 68·0 mm., Sunnambar R. at Nonankuppam, Pondicherry ; 1, 65·5 mm., Veerampatnam, Pondicherry ; 2, ca. 149·5 mm. each, Kilungimedu, Karaikkal.

Distribution.—Widespread in the Indo-West Pacific, ranging from Red Sea and east coast of Africa to Japan, Philippines, Australia and Polynesia. (Shallow coastal waters.)

Family 16. KYPHOSIDAE

132. **Kyphosus cinerascens** (Forskål)

1775. *Sciaena cineras* Forskal, *Descr. Animal.*, Hauniae, pp. 12, 53. (Arabia.)

1, 169·0 mm., Pondicherry.

Distribution.—Widespread from Red Sea and east Coast of Africa to Japan, Australia and Malanesia. (Coastal waters.)

Family 17. EPHIPPIDAE

133. **Ephippus orbis** (Bloch)

1787. *Chaetodon orbis* Bloch, *Naturg. ausland. Fische*, Berlin, 3, p. 81, pl. 202, fig. 1. (East Indies.)

1, 172·0 mm., Pondicherry.

Distribution.—From the east coast of Africa to China, Formosa and the Philippines. (Coastal waters.)

Family 18. DREPANIDAE

134. **Drepane punctata** (Linnaeus)

1758. *Chaetodon punctatus* Linnaeus, *Syst. Nat.*, (ed. 10,) London, Pt. 1, p. 273. (Asia.)

1, 92·0 mm., Pondicherry ; 1, 85·5 mm., Kilungimedu, Karaikkal.

Distribution.—Red Sea and east coast of Africa to Australia, China, Philippines and Polynesia. (Coastal and estuarine waters.)

Family 19. SCATOPHAGIDAE

135. *Scatophagus argus* (Linnaeus)

1766. *Chaetodon argus* Linnaeus, *Syst. Nat.*, (ed. 12), London, **1**, p. 464. (India.)
1, 200 mm., Poraiyar, Tranquebar ; 2, 83·5 & 88·5 mm., Gadilam R., Cuddalore.

Distribution.—Coasts of India, Ceylon, Burma, Malaya, Malay Archipelago, Thailand, China, Formosa, Philippines, Australia Melanesia and Polynesia. (Coastal waters, entering estuaries and fresh water of rivers and lakes.)

Family 20. CICHLIDAE

136. *Etroplus maculatus* (Bloch)

1785. *Chaetodon maculatus* Bloch, *Ichth. Hist. nat.*, Paris, pl. 427, fig. 2. (type-locality not given.)

22, 41·0—71·5 mm., Usteri Tank ; 4, 55·5 65·5 mm., Vellar R., Porto Novo ; 28, 14·0—39·5 mm., Ponnaiyar R., Cuddalore.

Distribution.—Ceylon and Peninsular India. (Coastal fresh waters.).

137. *Etroplus suratensis* (Bloch)

1785. *Chaetodon suratensis* Bloch, *Ichth. Hist. nat.*, Paris, pl. 217. (Surat.)

2, 185·0 and 218·0 mm., Pondicherry.

Distribution.—Ceylon, Peninsular India and Deccan. (Coastal fresh and brackish waters.)

Family 21. CEPOLIDAE

138. *Acanthocepola abbreviata* (Cuv. & Val.)

1835. *Cepola abbreviata* Cuvier & Valenciennes, *Hist. nat. Poiss.*, Paris, **10**, p. 403. (Anjer Strait, near Java.)

1, 176·5 mm., Porto Novo.

Distribution.—Coasts of India, Malaya, Malay Archipelago, and Philippines. (Coastal waters.)

Family 22. URANOSCOPIDAE

139. *Ichthyscopus lebeck* (Bloch & Schn.)

1801. *Uranoscopus lebeck* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 47. (Tranquebar.)

1, 220·0 mm., Porto Novo.

Distribution.—Coasts of India and Ceylon, Malay Archipelago, Australia and Japan. (Coastal waters.)

140. *Uranoscopus guttatus* Cuvier

1829. *Uranoscopus guttatus* Cuvier, *Hist. nat. Poiss.*, Paris, **3**, p. 305. (Pondicherry.)

2, 103·0 and 128·0 mm., Porto Novo.

Distribution.—India. (Coastal waters.)

Family 23. SIGANIDAE

141. *Siganus oramin* (Bloch & Schn.)

1801. *Amphacanthus guttatus* var. *oramin* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 207, pl. 48. (Tranquebar.)

2, 169·0 mm. each, Kilingimedu, Karaikkal.

Distribution.—Widespread in Indo-West Pacific, ranging from east coast of Africa to Japan, Australia, Melanesia, Micronesia, and Polynesia. (Coastal waters.)

Family 24. TRICHIURIDAE

142. *Trichiurus savala* Cuvier

1829. *Trichiurus savala* Cuvier, *Règne Animal* (2 ed.), Paris, 11, p. 219.

1831. *Trichiurus savala* Cuvier, *Hist. nat. Poiss.*, Paris, 8, p. 251, pl. 224. (Pondicherry ; China ; Malacca.)

8, 300·0 to 460·0 mm., Veerampatnam, Pondicherry (*topotypes*)
1, 390·0 Kilingimedu, Karaikkal.

Distribution.—From India and Ceylon to Malaya, Malay Archipelago, Thailand, China, Japan, Philippines and Queensland. (Coastal waters and estuaries.)

Family 25. SCOMBRIDAE

143. *Rastrelliger kanagurta* (Cuvier)

1817. *Scomber kanagurta* Cuvier, *Règne Animal*, Paris, 2, Op. 313, footnote. (Based on *kanagurta* Russell, 1803, *Fish Coromandel*, 11, p. 28, fig. 136, Vizagapatam.)

3, 215·0—230·0 mm., Sonakuppam, Cuddalore; 1, 240·0 mm., Veerampatnam, Pondicherry ; 2, 225·0 mm., & 230·0 mm., Tranquebar ; 1, 90·0 mm., Kilingimedu, Karaikkal.

Distribution.—Widespread in Indo-West Pacific, ranging from Red Sea and east coast of Africa to Japan, Australia, Melanesia, Micronesia and Polynesia. (Open sea and coastal waters.)

Family 25. CIBIIDAE

144. *Scomberomorus commersoni* (Lacépède)

1800. *Scomber commerson* Lacépède, *Hist. nat. Poiss.*, Paris, 2, pp. 598, 600, pl. 20, fig. 1. (Type-locality not given.)

1, 360·0 mm., Tranquebar.

Distribution.—Widespread in Indo-West Pacific, ranging from Red Sea and east and south coast of Africa to Japan, Australia, Melanesia and Polynesia. (Coastal and brackish waters.)

145. *Scomberomorus guttatus* (Bloch & Schn.)

1801. *Scomber guttatus* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 23, fig. 5. (Tranquebar.)

2, 340·5 mm., and 400·0 mm., Tranquebar (*topotypes*).

Distribution.—From Persian Gulf through India, and Ceylon to Malaya, Malay Archipelago, Thailand, China, Formosa and Philippines. Open sea and coastal waters, entering rivers.)

Family 27. STROMATEIDAE

146. **Pampus chinensis** (Euphrasen)

1788. *Stromateus chinensis* Euphrasen, Kongl. Vete. Acad. Handl. Stockholm, Stockholm, 9, p. 53. (Channel between Canton & Hong Kong along Chinese coast.)

2, 205·0 mm. each Veerampatnam, Pondicherry.

Distribution.—From India and Ceylon to Malaya, Malay Archipelago, Thailand, Indo-China and China. (Coastal waters.)

147. **Parastromateus niger** (Bloch)

1795. *Stromateus niger* Bloch, Naturg. ausland. Fische, Berlin, 6, p. 93, pl. 422 (Malaya.)

1, 239·0 mm., Sattankudi, Tranquebar.

Distribution.—Widespread from Persian Gulf and east coast of Africa to Japan and Philippines. (Coastal waters.)

Family 28. ANABANTIDAE

148. **Anabas testudineus** (Bloch)

1792. *Anabas testudineus* Bloch, Naturg. ausland. Fische, Berlin, 6, p. 121, pl. 322. (East Indies.)

8, 31·0—95·0 mm., Kakamurughe village, near Karaikkal ; 7, 19·0—35·0 mm., Thannikoil, Cuddalore.

Distribution.—India, Ceylon, Burma, Malaya, Malay Archipelago, Thailand, Indo-China, South China and Philippines. (Rivers, lakes, ponds, marshes and ditches ; also estuaries. Both fresh and brackish waters.)

Family 29. ELEOTRIDAE

149. **Eleotris fusca** (Bloch & Schn.)

1801. *Poecilia fusca* Bloch & Schneider, Syst. Ichth., Berlin, p. 453. (New Hebrides.)

6, 35·0—55·0 mm., Ponnaiyar R., Cuddalore.

Distribution.—From the east coast of Africa to the Philippines, Guam and through Polynesia to the Marquesas (Brackish to fresh waters.)

Family 30. GOBIIDAE

150. **Glossogobius giuris** (Hamilton)

1822. *Gobius giuris* Hamilton, Fish Ganges, Edinburgh, p. 51, pl. 33, fig. 15. Gangetic Provinces.)

7, 35·0—144·0 mm., Ponnaiyar R., Cuddalore ; 223, 45·0—52·0 mm., Kudikadu backwaters, Cuddalore ; 23, 30·0—52·5 mm., Madukkarai, Pondicherry ; 8, 27·5-44·0 mm., Gadilam R, Cuddalore ; 1, 99·0 mm., Kakamurihe, Karaikkal ; 2, 43·5 mm., each, Kunjampetta, Cuddalore ; 1, 145·0 mm., Sunnambar R., at Nonankuppam, Pondicherry ; 3, 70·0—195·0 mm., Poraiyar, Tranquebar.

Distribution.—From east coast of Africa to Australia and New Caledonia, Philippines, China and Japan. (Fresh and salt waters.)

Family 31. PERIOPHTHALMIDAE

151. **Boleophthalmus boddaerti** (Pallas)

1770. *Gobius boddaerti* Pallas, *Spicilegia*, Berlin, 8, p. 11, pl. figs. 4-5. (Indian Ocean.)

7, 96·5—160·0 mm., Vellar R., Porto Novo ; 2, 100·0 & 133·0 mm., mouth of Arasalar R., Karaikkal ; 2, 112·0 & 149·0 mm., Kunjampetta, Cuddalore ; 1, 67·5 mm., Gadilam R., Cuddalore ; 38, 80·0—128·0 mm., Tranquebar.

Distribution.—India, Malaya, Malay Archipelago and Thailand. (Salt and brackish waters, entering tidal rivers.)

Family 32. SCORPAENIDAE

152. **Minous monodactylus** (Bloch & Schn.)

1801 *Scorpaena monodactyla* Bloch & Schneider *Syst. Ichth.*, Berlin, p. 194. (Type-locality not given.)

3, 103·5-116·0 mm., Sonakuppam, Cuddalore.

Distribution.—Seas of India to China. (Coastal waters.)

153. **Sebastichthys strongia** (Cuv. & Val.)

1829. *Scorpaena strongia* Cuvier & Valenciennes, *Hist. nat. Poiss.* Paris, 4, p. 323. (Caroline Islands.)

4, 68·5—116·5 mm., Porto Novo.

Distribution.—From India and Ceylon to Polynesia and Hawaii. (Coastal waters.)

Family 33. PLATYCEPHALIDAE

154. **Platycephalus indicus** (Linnaeus)

1758. *Callionymus indicus* Linnaeus, *Syst. Nat.* (ed. 10), London, 1, p. 250. (Asia.)

1, 96·0 mm., Kilingimedu, Karaikkal ; 1, ca. 122·0 mm., Kudikadu backwaters, Cuddalore.

Distribution.—Widespread, ranging from Red Sea and east coast of Africa to Australia, Japan and Melanesia. (Coastal waters and estuaries.)

155. **Platycephalus macracanthus** (Bleeker)

1869. *Platycephalus macracanthus* Bleeker, *Akad. Wet. Amsterdam Verslag.*, Amsterdam, 3 (2), p. 253. (Amboina.)

1, 151·5 mm., Porto Novo.

Distribution.—India to the Malay Archipelago and Amboina. (Coastal waters.)

156. **Platycephalus scaber** (Linnaeus)

1758. *Cottus scaber* Linnaeus, *Syst. Nat.* (ed. 10), London, Pt. 1, p. 451. (East Indies.)

2, 118·0 mm. and 161·0 mm., Porto Novo ; 3, 220·0—225·0 mm., Kilingimedu, Karaikkal ; 1, 205·0 mm., Sonakuppam, Cuddalore.

Distribution.—Seas of India to Malay Archipelago and Amboina. (Coastal waters.)

Order 15. PLEURONECTIFORMES

Family 1. PSETTODIDAE

157. **Psettodes erumei** (Bloch & Schn.)

1801. *Pleuronectes erumei* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 150. (Tranquebar.)

1, 187.0 mm., Tranquebar (*topotype*).

Distribution.—Widespread, from Red Sea and east coast of Africa to Australia, Philippines and Japan. (Coastal waters down to 50 fathoms.)

Family 2. BOTHIDAE

158. **Pseudorhombus javanicus** (Bleeker)

1853. *Rhombus javanicus* Bleeker, *Nat. Tyds. ned. Indie*, Batavia, 4, p. 502. (Batavia.)

1, 169.0 mm., Porto Novo.

Distribution.—Widespread, from east coast of India and Ceylon to Malaya, Malay Archipelago, Thailand, Indo-China, China and Philippines. (Coastal waters.)

159. **Pseudorhombus triocellatus** (Bloch & Schn.)

1801. *Pleuronectes triocellatus* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 145. (East Indian seas.)

1, 118.5 mm., Pondicherry ; 2, 110.5 and 124.5 mm., Kilingimedu, Karaikkal ; 1, 123.0 mm., Keechamkuppam, Nagapatnam ; 1, 100 mm., Porto Novo.

Distribution.—Widespread from east coast of India and Ceylon to Malay Archipelago and Polynesia. (Coastal waters.)

Family 3. CYNOGLOSSIDAE

160. **Aesopias cornuta** (Kaup)

1858. *Aesopias cornuta* Kaup, *Arch. Naturg.*, Berlin, 24, p. 98 (India).

2, 104.5 and 128.5 mm., Pondicherry

Distribution.—India and Ceylon. (Coastal waters.)

161. **Brachirus orientalis** (Bloch & Schn.)

1801. *Pleuronectes orientalis* Bloch & Schneider, *Syst. Ichth.*, Berlin, p. 157. (Tranquebar.)

2, 110.0 and 121.5 mm., Vellar R., Porto Novo.

Distribution.—From India and Ceylon to China and Australia. (Coastal waters.)

162. **Cynoglossus lida** (Bleeker)

1851. *Plagusia lida* Bleeker, *Nat. Tyds. ned. Indie*, Batavia, 1, p. 413. (Batavia.)

1, 127.0 mm., Tranquebar ; 1, 120.0 mm., Killingimedu, Karaikkal ; 2, 190.0 mm. each, Sonakuppam, Cuddalore.

Distribution.—From east coast of Africa to Malaya and Malay Archipelago. (Coastal shallow waters.)

163. **Cynoglossus lingua** (Hamilton)

1822. *Cynoglossus lingua* Hamilton, *Fish. Ganges*, Edinburgh, pp. 32, 365. (Salt estuaries of Calcutta.)

1, 77.5 mm., month of Arasalar R. Karaikkal ; 1, 161.5 mm., Tranquebar.

Distribution.—East coast of India and Ceylon, Malaya, Malay Archipelago and Thailand. (Coastal waters and estuaries.)

164. **Cynoglossus macrolepidotus** (Bleeker)

1850. *Plagusia macrolepidota* Bleeker, *Nat. Tyds. ned. Indie*, Batavia, 1, p. 415. (Batavia).

1, 189.5 mm., Tranquebar ; 1, 210.0 mm., Pondicherry ; 2, ca. 340.0 mm., each, Keechankuppam, Nagapatnam ; 2, 187.0 and 222.0 mm., Sonakuppam, Cuddalore ; 1, 227.5 mm., Veerampatnam, Pondicherry.

Distribution.—From Persian Gulf, coasts of India and Ceylon to Philippines. (Coastal waters.)

165. **Synaptura commersoniana** (Lacépède)

1802. *Pleuronectes commersonii* Lacépède, *Hist. nat. Poiss.*, Paris, 3, pl. 12, fig. 2. (Mauritius.)

1, 82.0 mm., Sonakuppam, Cuddalore ; 1, 217.0 mm., Kilingimedu, Karaikkal.

Distribution.—India and Ceylon to Malaya and Malay Archipelago. (Coastal waters.)

166. **Zebrias quagga** (Kaup)

1858. *Aesopia quagga* Kaup, *Arch. Naturg.*, 1, Berlin, p. 98. (Bombay.)

1, 112.5 mm., Veerampatnam, Pondicherry.

Distribution.—From Iran, India and Ceylon to Japan and Australia. (Coastal waters.)

Order 16. MASTACEMBELIFORMES

Family 1. MASTACEMBELIDAE

167. **Macrognathus aculeatum** (Bloch)

1795. *Ophidium aculeatum* Bloch, *Naturg. ausland. Fische*, Berlin, pl. 159, fig. 2. (Type-locality not given.)

4, 124.0—150.0 mm., Usteri Tank ; 2, 140.0 mm., each, Bahur, 10 miles north-west of Cuddalore ; 1, 190.0 mm., Madakardipet, Madukkarai ; 2, 120.0 and 169.0 mm., Madukkarai, Pondicherry.

Distribution.—India, Ceylon, Burma, Malaya, Malay Archipelago, Thailand, Indo-China and China. (Fresh and brackish waters.)

Order 17. ECHENEIFORMES

Family 1. ECHENEIDAE

168. *Echeneis neucrates* Linnaeus

1758. *Echeneis neucrates* Linnaeus, *Syst. Nat.*, (ed. 10.) London, pt. 1, p. 261. ("In Pelago Indico").

1, 600.0 mm., Pondicherry.

Distribution.— In all warmer seas of the world. (On large sharks as host.)

Order 18. TETRODONTIFORMES

Family 1. TRIACANTHIDAE

169. *Triacanthus indicus* Regan

1903. *Triacanthus indicus* Regan, Proc. zool. Soc. Lond., London, p. 184. (Based on Russell, 1803, *Indian Fishes*, p. 14, pl. 21, coasts of India.)

2, 119.5 mm., and 200.0 mm., Tranquebar ; 1, 120.0 mm., Pondicherry; 83.5 mm., Kilingimedu, Karaikkal.

Distribution.— From India and Ceylon to Penang. (Coastal waters.)

Family 2. TETRAODONTIDAE

170. *Arothron stellatus* (Bloch and Schn.)

1801. *Tetrodon Lugocephalus* var. *stellatus* Bloch & Schneider. *Syst. Ichth.* Berlin, p. 503. (Mauritius.)

1, 350.0 mm., Keechankuppam, Nagapatnam ; 1, 360.0 mm., Pondicherry.

Distribution.— Widespread in Indo-West Pacific, ranging from East Africa to Australia and Polynesia. (Coastal waters.)

171. *Chelonodon fluviatilis* (Hamilton)

1822. *Tetronodon fluviatilis* Hamilton, *Fish, Ganges*, Edinburgh, pp. 6, 362, pl. 30, fig. 1. (Lower Bengal.)

2, about 110.0 mm. each, Sunnamber river at Nonankuppam ; Pondicherry ; 1, 118.0 mm., Tranquebar.

Distribution.— From India and Ceylon to the Philippines. (Coastal waters entering rivers and lagoons.)

172. *Chelonodon patoca* (Hamilton)

1822. *Tetronodon patoca* Hamilton, *Fish Ganges*, Edinburgh, pp. 7, 362, pl. 18, fig. 2. (Ganges estuaries.)

2, 111.0 and 131.0 mm., Sonakuppam, Cuddalore ; 1, 140.0 mm., Tranquebar.

Distribution.— Widespread in the Indo-West Pacific, ranging from East Africa to the Philippines. (Coastal waters, estuaries and lagoons.)

173. *Gastrophysus lunaris* (Bloch and Schn.)

1801. *Tetradon lunaris* Bloch & Schneider, *Syst. nat. Bloch.*, Berlin, p. 505.
(Malabar.)

1, 131.5 mm., porto Novo ; 14, 70.0—152.0 mm., Ariyamkuppam, Pondicherry, 4, 100.0—181.5 mm., Kilingimedu, Karaikkal ; 1, 111.5 mm.. Veerampatnam, Pondicherry ; 4, 102.2—167.0 mm., Tranquebar.

Distribution.—Widespread in Indo-West Pacific, ranging from East Africa to the Philippines. (Coastal waters.)

174. *Lagocephalus inermis* (Temm. & Schleg.)

1847. *Tetradon inermis* Temm. & Schleg., *Faun. Japon Poiss.*, Paris, p. 278, t. 122, fig. 2. (Japan.)

2, ca. 110.0 mm. each, Sunnambar R. at Nonankuppam, Pondicherry ; 1, 118.0 mm., Tranquebar.

Distribution.—Widespread in the Indo-West Pacific, ranging from east Africa to Japan. (Coastal waters.)

175. *Troquigener oblongus* (Bloch)

1786. *Tetradon oblongus* Bloch, *Naturg. ausland. Fische*, Berlin, 2, p. 6., pl. 145, fig. 1. (East Indies.)

2, 85.5 and 113.0 mm., Kilingimedu, Karaikkal ; 1, 235.0 mm., Keechankuppam, Nagapatnam ; 1, 270.5 mm., Pondicherry.

Distribution.—Widespread in Indo-West Pacific, ranging from East Africa to Japan. (Coastal waters.)

IV—ZOOGEOGRAPHICAL REMARKS

Of the 175 species of fishes in the collection under report, *Chela clupeoides* (Bloch), *C. laubuca* (Ham.), *Esomus barbatus* (Jerdon), *Rasbora daniconius* (Ham.), *Labeo calbasu* (Ham.), *L. boga* (Ham.), *L. kontius* (Jerdon.), *Puntius chola* (Ham.), *P. dorsalis* (Jerdon), *P. filmaentosus* (Val.), *P. sarana* (Ham.), *Puntius (sarana) pinnauratus* Day and *P. sophore* (Ham.) (Cyprinidae), *Lepidocephalus thermalis* (Val.) (Cobitidae), *Mystus vittatus* (Bloch) (Bagridae), *Pseudeutropius atherinoides* (Bloch) (Schiibeidae), *Channa gachua* (Ham.), *C. leucopunctata* (Sykes), *C. punctata* (Bloch) and *C. striata* (Bloch) of the family Channidae according to the classification of Myers (1938) may be considered as the "Primary Freshwater Group". Because of their physiological intolerance to salt water, the migration of these fishes to Peninsular India had to be accomplished by means of fresh water migration routes (Menon, 1955). *Aplocheilus panchax* (Ham.) (Cyprinodontidae), *Xenentodon cancila* (Ham.) (Belontidae), *Ambassis ranga* (Ham.) (Ambassidae), *Etroplus maculatus* (Bloch) and *E. suratensis* (Bloch) (Cichlidae), *Anabas testudineus* (Bloch) (Anabantidae), *Eleotris fusca* (Bloch and Schn.) (Eleotridae), *Glossogobius giuris* (Ham.) (Gobiidae) and *Macrognathus aculeatum* (Bloch) (Mastacembelidae) may be considered "Secondary" rather than "Primary" fresh water fishes. These fishes have a fairly well-developed salt tolerance and may have been able to colonise Peninsular India by crossing salt water barriers. Leaving out the "Primary" and "Secondary" fresh water fishes, the rest are either marine shore fishes or euryhaline fishes which are adapted to considerable variations in salinity. The euryhaline fishes

show a marine type of distribution similar to those of the shore fishes, and they are, therefore, considered here along with the shore fishes for the purpose of the zoogeographical discussion.

The range of each species in the collection has been carefully investigated and analysed in order to give some idea of the zoogeographical affinities of this fauna. Of the 146 species of shore fishes in the collection, *Galeocerdo cuvieri* (Le Sueur), *Mugil cephalus* Linnaeus and *Echeneis neucrates* Linnaeus, forming 2.0 per cent, are circumtropical in distribution. Two species, *Rachycentron canadus* Linnaeus and *Caranx carangus* (Bloch), forming 1.4 per cent, are also widespread in all warm seas of the world except the west coast of America. *Tachysurus jella* Day, *Anguilla bicolor* McClell., *Bascanichthys deraniyagalai* Menon, *Doryichthys* Sp. *Oryzias melastigma* (McClell.), *Doryichthys cuncalus* (Ham.), *Johnius maculatus* Bloch and Schn. *Uranoscopus guttatus* Cuvier, and *Aesopria cornuta* (Kaup), 9 species, or 6.2 per cent, are endemic to the Indian area. Fourteen species, or 9.6 per cent, are distributed throughout the Indo-West Pacific region, ranging from the East African area to the Polynesian, including the Japanese and the North Australian areas. Sixty-five species, or 44.5 per cent, are spread from the East African area (Red Sea, Arabia, South Africa or Seychelles) to the Malay area including the Japanese or the North Australian or the Polynesian or in the case of a few species, more than one area of the east. Twenty-four species, or 16.4 per cent, are common to the Indian and the Malay areas including one or more areas (Japanese, N. Australian or Polynesian) of the east. Twenty-nine species, or 19.9 per cent, are found in the Indian and the Malay areas only. Thus, it will be seen that excluding the endemic forms there is not a single species which is not found in the Malay area, i.e., about 94.0 per cent of the species of shore fishes in the collection are also found in the Malay area.

The Malay area, with the world's greatest Archipelago containing large areas with a depth of less than 200 m., is the richest in animal life, no region in the world being so rich in species (Ekman, 1953). The present study indicates that the Malay area is the centre and focus of evolution of the marine shore fish fauna of the Indo-West Pacific region and India undoubtedly derived its shore fish fauna from this centre of distribution.

V—SUMMARY

The Coromandel Coast, including Pondicherry and Karaikkal areas, was surveyed during 1956-58 and a systematic account of the fish collections is given. In all 175 species of fish are listed including two recently described species. Topotype specimens of 15 species are present in the collections. A brief zoogeographical discussion of the shore fishes in the collection is also included in the paper.

VI—REFERENCES

- EKMAN, S. 1953. *Zoogeography of the Sea*. xiv+417, pp. London.
 MENON, A. G. K. 1955. The external relationships of the Indian freshwater fishes, with special reference to the countries bordering on the Indian Ocean—*J. Asiatic Soc. Beng. (Sci.)*, Calcutta, 21 (1) pp. 31-38.

MYERS, G. S. 1938. Freshwater fishes and West Indian zoogeography.—
Ann. Rept. Smithsonian Inst. for 1937, Washington, Publ. No.-
3465, pp. 339-364.